

CASE REPORT

Endovascular Stent Grafting of a Penetrating Ulcer in the Descending Thoracic Aorta

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Introduction

Due to its unpredictable natural history, penetrating atheromatous ulcer of the aorta is now recognised as a distinct clinical entity. We describe the presentation and endovascular repair of a full thickness penetrating ulcer in the descending thoracic aorta.

Case Report

A previously fit 82-year-old woman was admitted as an emergency with a four-day history of epigastric pain radiating to her back. The pain presented suddenly whilst exercising and was worsened by inspiration and coughing. She denied prior cough or haemoptysis, although she had smoked until age 60 years.

Apart from hypertension diagnosed 5 years previously, she had no other relevant past medical or surgical history.

Cardiorespiratory, abdominal and neurological examination was unremarkable and she had a blood pressure of 140/80 mmHg.

Investigations showed a haemoglobin of 11.6 g/dl and white cell count of $16.5 \times 10^9/l$. Liver function, amylase and creatine kinase were all normal. An ECG showed sinus rhythm with no acute changes, however a chest radiograph showed a widened

mediastinum. A thoracic CT scan was performed which showed a large left pleural effusion with an anterior mediastinal mass. Pleural aspirates were heavily blood stained and cytology was negative, including endobronchial specimens.

The working diagnosis was a neoplasm, and a repeat CT scan was performed 8 weeks later. This showed resolution of the pleural effusion, and abnormal appearances within the mediastinum. The descending thoracic aorta was of normal calibre, but through the aortic wall there was shown to be a linear filling defect, similar to that seen in aortic dissection. A thoracic aortogram demonstrated that this abnormality represented the rolled edge of a penetrating ulcer within the aortic wall (Fig. 1).

Elective endovascular repair of the distal thoracic aorta was performed three weeks after the diagnosis was made. The aorta was accessed through the right common iliac artery. Two 36 mm diameter stent grafts were deployed; one telescoped inside the other, distal inside proximal to produce a total length within the descending thoracic aorta of 9 cm. The ulcer was completely excluded (Fig. 2). CT scanning has revealed no evidence of endoleak or stent migration at 1-year follow-up.

Discussion

Penetrating aortic ulcers refers to ulceration of an atheromatous plaque that extends deeply through the intima and into the aortic media. Such ulcers may lead to pseudoaneurysmal formation or intramural dissection.

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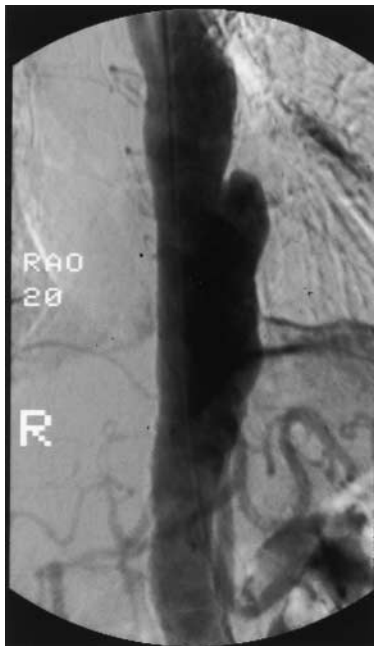


Fig. 1. Intra-arterial DSA of descending aorta showing penetrating ulcer within large atheromatous plaque.

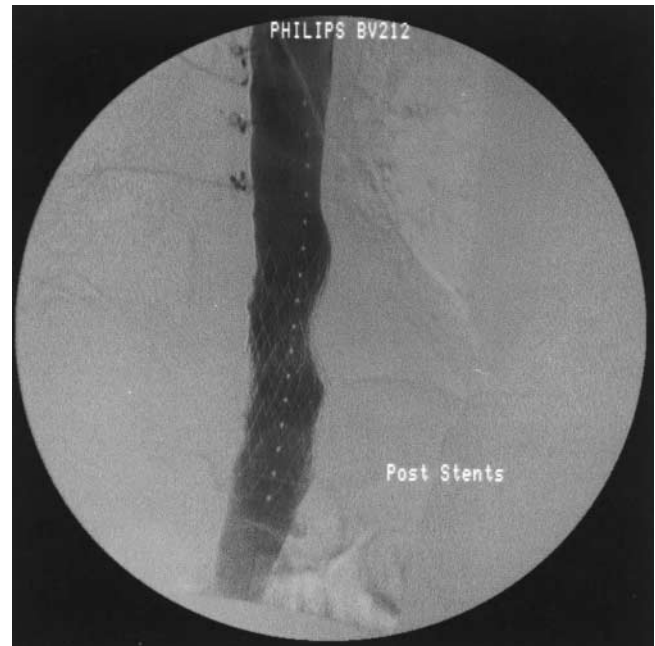


Fig. 2. Intra-arterial DSA immediately after stent graft insertion demonstrating patency of the stent graft and exclusion of the ulcer.

With a penetrating ulcer there is often a paucity of specific clinical signs. In one series of 16 cases however, the initial presentation of a penetrating ulcer in 13 of the patients was with chest and/or back pain.¹

A clue to the diagnosis of an ulcer can often be gleaned from the chest radiograph which usually shows a widened mediastinum and pleural effusion, of which the aspirate may be serous or, as in this case, haemorrhagic.

Recent evidence has shown that conservative medical therapy with penetrating ulcers in symptomatic patients leads to recurrence of symptoms and a need for surgical intervention.² In a retrospective study of 198 patients in whom aortic dissection was initially diagnosed, 7.6% of patients were found to have a penetrating aortic ulcer.³ This case demonstrates the value and outcome even in very elderly patients to

endovascular repair of a thoracic aortic penetrating ulcer in a patient in whom conservative treatment would be deemed more appropriate than open surgery.

References

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Accepted 30 September 2002